NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
UNITED STATES DEPARTMENT OF COMMERCE

# NOAA In Your State

# California

***"NOAA's science based work touches 300 million Americans daily, protecting lives and livelihoods. NOAA's products and services are the result of the hard work of our dedicated staff and partner organizations located in program and research offices throughout the globe. The following is a summary of NOAA programs based in, and focused on, your state or territory. The entries are listed by statewide, region, and then by congressional districts and cities or towns."***

**Dr. Kathryn Sullivan**
**Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator**

## *CA*

### *Statewide*

**National Marine Fisheries Service (NMFS) - Office of Law Enforcement**

NOAA's Office of Law Enforcement is the only conservation enforcement program (Federal or State) that is exclusively dedicated to Federal fisheries and marine resource enforcement. Its mission is to protect global marine resources by enforcing domestic laws and international treaties and obligations dedicated to protecting wildlife and their natural habitat. Our special agents and enforcement officers ensure compliance with these laws and take enforcement action if there are violations. Additionally, the Cooperative Enforcement Program allows NOAA the ability to leverage the resources and assistance of 27 coast states and U.S. territorial marine conservation law enforcement agencies in direct support of the Federal enforcement mission.

Effective fisheries law enforcement is critical to creating a level playing field for U.S. fishermen and enabling sustainable fisheries to support vibrant coastal communities. The Office of Law Enforcement's Southwest Division is headquartered in Long Beach, California, with field offices in Long Beach, Santa Maria, San Diego, Monterey, Sacramento, Santa Rosa and Arcata.

**National Marine Fisheries Service (NMFS) - Southwest Fisheries Science Center**

The Southwest Fisheries Science Center conducts marine biological, economic and oceanographic research, observations on living marine resources and their environment throughout the Pacific Ocean and the Southern Ocean off Antarctica. The Science Center is based in La Jolla with laboratories located in Santa Cruz and Monterey and field stations in Granite Canyon and Piedras Blancas.

**National Marine Fisheries Service (NMFS) - West Coast Region**
NOAA Fisheries is dedicated to protecting and preserving our nation's living marine resources through scientific research, fisheries management, enforcement, and habitat conservation. The West Coast Region of NOAA Fisheries administers fisheries programs along the coasts of Washington, Oregon and California; and in the vast inland habitats of Washington, Oregon, California and Idaho. We work to conserve, protect, and manage salmon and marine mammals under the Endangered Species Act and Marine Mammal Protection Act, and sustainably manage West Coast fisheries as guided by the Magnuson-Stevens Fisheries Conservation Act. We work closely with tribes, local, state, and federal agencies, and our stakeholders and partners to find science-based solutions to complex ecological issues.

**National Ocean Service (NOS) - West Coast Governors Alliance on Ocean Health**
To maintain quality constituent service, NOAA's Office for Coastal Management regional staff work with the West Coast Governors Alliance, the emerging West Coast Ocean Partnership, and the coastal states and tribes in this region. The focus is on regional issues such as community resiliency; climate change; data delivery and coordination, eliminating marine debris, and monitoring ocean acidification. NOAA staff coordinates the deployment of NOAA products and services in the region and provide staffing support to the West Coast Governors Alliance Executive Committee, the Regional Data Framework, and the Climate Change Action Coordination Team. The regional team also provides support for the NOAA Regional Ocean Partnership grants that the Governors Alliance received from 2011 through 2013.

**National Ocean Service (NOS) - West Coast Services Region**
The NOAA Office for Coastal Management practices a partner-based, boots on the ground approach to coastal management. The organization currently has staff in the Northeast, Mid-Atlantic, Southeast, Gulf of Mexico, West Coast, Pacific Islands, and the Great Lakes regions to provide assistance to local, state, and regional coastal resource management efforts and facilitate customer feedback and assessments. Assistance is provided to local, state, and regional coastal resource management efforts. The central West Coast staff office is located in Oakland, California, with additional staff based in Portland, Oregon and Seattle, Washington.

**National Weather Service (NWS) - Automated Surface Observing Systems Stations**
The Automated Surface Observing Systems (ASOS) program is a joint effort of the National Weather Service (NWS), the Federal Aviation Administration (FAA), and the Department of Defense (DOD). ASOS serves as the Nation's primary surface weather observing network. ASOS is designed to support weather forecast activities and aviation operations while supporting the needs of the meteorological, hydrological, and climatological research communities. ASOS works non-stop, updating observations 24/7/365 observing basic weather elements, such as cloud cover, precipitation, wind, sea level pressure, and conditions, such as rain, snow, thunderstorms, and fog. There are 86 ASOS stations in California.

**National Weather Service (NWS) - Cooperative Observer Program Sites**
The National Weather Service (NWS) Cooperative Observer Program (COOP) is truly the Nation's weather and climate observing network of, by and for the people. More than 10,000 volunteers take observations on farms, in urban and suburban areas, National Parks, seashores, and mountaintops. The data are representative of where people live, work and play. The COOP was formally created in 1890 under the NWS Organic Act to provide observational meteorological data, usually consisting of daily maximum and minimum temperatures, snowfall, and 24-hour precipitation totals, required to define the climate of the United States and to help measure long-term climate changes, and to provide observational meteorological data in near real-time to support forecast, warning and other public service programs of the NWS. The data are also used by other federal (including the Department of Homeland Security), state and local entities, as well as private companies (such as the energy and insurance industries). In some cases, the data are used to make billions of dollars' worth of decisions. For example, the energy sector uses COOP data to calculate the Heating and Cooling Degree Days which are used to determine individuals' energy bills monthly. There are 493 COOP sites in California.

**National Weather Service (NWS) - Incident Meteorologists**
The NWS, as mandated by Congress, provides fire weather forecast products and services to the fire and land management community for the protection of life and property, promotion of firefighter safety, and stewardship of America's public wildlands. Since 1927, this effort has included providing critical on-scene support to wildfire managers via specially-trained NWS forecasters called Incident Meteorologists (IMETs). When a fire reaches a large enough size, IMETs are rapidly deployed to the incident and set-up a mobile weather center to provide constant weather updates and forecast briefings to the fire incident commanders. IMETs are very important members of the firefighting team, as changes in the fires are largely due to changes in the weather.

**National Weather Service (NWS) - NOAA Weather Radio All Hazards Transmitters**
NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service (NWS) forecast office. NWR broadcasts official NWS warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week. Working with the Federal Communication Commission's (FCC) Emergency Alert System, NWR is an "All Hazards" radio network, making it the single source for comprehensive weather and emergency information. In conjunction with federal, state, and local emergency managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards – including natural, environmental and public safety. Known as the "Voice of NOAA's National Weather Service," NWR is provided as a public service by the NWS. NWR includes 1,100 transmitters covering all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories. There are 32 NWR transmitters in California.

**Office of Oceanic and Atmospheric Research (OAR) - MOA Department of Water Resources**
NOAA is in the midst of a new 5-year Memorandum of Agreement (MOA) with the California Department of Water Resources that provides state-of-the-art observations, numerical weather prediction, display systems, and decision support tools to address water resource and flood protection issues. The project utilizes an existing network of GPS receivers to retrieve water vapor measurements at 37 sites across the state. Because the amount of rainfall absorbed by the ground can be the deciding factor for flooding, soil measurement systems are being deployed at 43 sites across the state. Low-powered S-Band radars (designed by ESRL for this project) deployed at key reservoirs around the state will help detect snow level. Coastal atmospheric observatories will measure the conditions associated with land-falling atmospheric rivers; a key component of winter storms that are responsible for flooding and can sometimes lead to dangerous debris flows.

**Office of Oceanic and Atmospheric Research (OAR) - California Sea Grant College Program**
NOAA's National Sea Grant College Program is a federal-university partnership that integrates research, education and outreach (extension and communications). Sea Grant forms a network of 33 programs in all U.S. coastal and Great Lakes states, Puerto Rico and Guam. The California Sea Grant College Program, based at the University of California's Scripps Institution of Oceanography in La Jolla, annually funds 60 concurrent research projects, which are peer-reviewed and competitively selected to address a wide range of problems and opportunities. The program supports an additional 25 outreach and applied research projects through its Extension Specialists. Current projects focus on healthy marine ecosystems, sustainable use of coastal and marine resources, sustainable coastal community development, fisheries and fisheries habitat, seafood safety and quality, coastal water quality, aquatic nuisance species, wetland and salmonid habitat restoration, aquaculture, new technologies, marine reserves, and education, training and public information.

**Office of Oceanic and Atmospheric Research (OAR) - University of Southern California Sea Grant Program**
NOAA's National Sea Grant College Program is a federal-state-university partnership that integrates research, education, and outreach (extension and communications). Sea Grant forms a network of 33 programs in all U.S. coastal and Great Lakes states, Puerto Rico and Guam. The Southern California Sea Grant Program, based at the University of Southern California in Los Angeles, concentrates on "The Urban Ocean" -- issues arising out of the necessity of managing people and natural resources in an intensely urban and developed coastline. USC Sea Grant focuses its research, outreach and education programs on the most pressing issues along the urban coastline, including: water quality impacts from land-based inputs into the coastal ocean, harmful algal blooms, invasive species, marine protected areas, seafood safety, ports and harbors, and climate change planning and adaptation. In addition, K-12 education programs increase science literacy among urban students and encourage teachers to adopt science education curricula. Many California institutions receive research funding through the Sea Grant College Program, including the University of Southern California and other private institutions, and University of California and California State University campuses. Any academic institution may apply for funding for projects addressing issues pertaining to the "urban ocean."

### *Coastal*

**National Marine Fisheries Service (NMFS) - Deep-Sea Coral Research and Technology Program**
The Deep Sea Coral Research and Technology Program —called for in the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act—worked with other NOAA offices and external partners to conduct research cruises off the West Coast from 2010-2012. Scientists are finding coral and sponge habitats and documenting their associations with fish. This field research also provided targeted analyses of existing information about deep-sea coral ecosystems, the distribution and intensity of fishing activities that may damage deep-sea corals in federal waters, and coral and sponge bycatch in fisheries. Findings not only improve knowledge about deep-sea life but also support Pacific Fishery Management Council actions and marine sanctuary needs.

**National Marine Fisheries Service (NMFS) - Restoration Center**
The NOAA Restoration Center is devoted to restoring the nation's coastal ecosystems and preserving diverse and abundant marine life. Our projects help recover threatened and endangered species, support sustainably managed species, and reverse the damage done by oil spills and toxic releases. In addition, the Restoration Center, along with NMFS Habitat Protection and the West Coast Region Office, are working on implementing NOAA's First Habitat Blueprint site --the Russian River Watershed Habitat Focus Area. Working with four other NOAA Line offices (National Weather Service, National Ocean Service, Office of Research and Program Planning and Integration) we are conserving habitat in the Russian River at a watershed scale.

**National Marine Fisheries Service (NMFS) - Species Recovery Program**
Under the authority of section 6 of the Endangered Species Act, the Cooperation with States Program brings states, NMFS, and other partners together to recover threatened and endangered species. Competitive grants are awarded to states through the Species Recovery Grants to States Program to support management, monitoring, research and outreach efforts for species that spend all or a portion of their life cycle in state waters. The funded work is designed to prevent extinctions or reverse the decline of species, and restore ecosystems and their related socioeconomic benefits. Twenty-five coastal states, including California and U.S. territories, currently participate in this program. The California Department of Fish and Wildlife is currently completing an over $1 million dollar award focused on preventing the extinction of white abalone - one of NOAA's Species in the Spotlight.

**National Marine Fisheries Service (NMFS) - National Marine Mammal Stranding Network and John H. Prescott Marine Mammal Rescue Assistance Grant Program**

The National Marine Mammal Stranding Network and its trained professionals respond to dead or live marine mammals in distress that are stranded, entangled, out of habitat or otherwise in peril. Our long-standing partnership with the Network provides valuable environmental intelligence, helping NOAA establish links among the health of marine mammals, coastal ecosystems, and coastal communities as well as develop effective conservation programs for marine mammal populations in the wild. There are 14 stranding network members in the state. NOAA Fisheries funds eligible members of the Stranding Network through the competitive John H. Prescott Marine Mammal Rescue Assistance Grant Program. Since 2001, $48.2mil has been awarded to 5552 grantees that raised over $15.9 million in matching funds. In FY15, 34 grantees received $2.7Mil nationwide, with six awards going to six recipients in California: California Academy of Sciences; California Wildlife Center; Channel Islands Cetacean Research Unit; Channel Islands Marine Institute; Humboldt State University Sponsored Programs Foundation; and the Regents of the University of California, Santa Cruz.

**National Marine Fisheries Service (NMFS) - Pacific Coastal Salmon Recovery Fund**

Since 2000, approximately 12,000 projects have restored over 1 million acres of salmon habitat, opening nearly 9,100 miles of streams to spawning fish, with $1.2 billion in grants leveraging over $1.4 billion in contributions. Recent studies suggest that a $1 million investment in watershed restoration creates on average 16 to 17 new “green” jobs and averages $2.3 million in economic activity. In California, there are 275 active projects.

**National Marine Fisheries Service (NMFS) - Wetlands Recovery Project**

NMFS West Coast Region has been an active participant in the Southern California Wetlands Recovery Project including providing leadership as the Chair of the Wetlands Manager’s Group. The Wetlands Recovery Project is a broadly based partnership with 18 state and federal agencies working in concert with scientists, local governments, and environmental organizations, as well business leaders and educators to increase the pace and effectiveness of wetlands recovery efforts in southern California. To date, the Wetlands Recovery Project has spent more than $528 million dollars enhanced over 3,400 acres of wetland habitat and protected over 7,900 acres of coastal wetlands and watersheds. Major projects include coastal bay and lagoon habitat restoration, increasing fish passage opportunities, stream restoration, and invasive species eradication and control.

**National Marine Fisheries Service (NMFS) and National Ocean Service (NOS) - Montrose Settlements Restoration Program**

From the late 1940s to the early 1970s, the Montrose Chemical Corporation discharged millions of pounds of DDT and PCBs onto the Palos Verdes Shelf off the Southern California coast. These hazardous chemicals persist in the environment and continue to affect marine life and birds in Southern California. NOAA and other natural resource trustees formed MSRP to oversee restoration of bald eagles, peregrine falcons, seabirds, fishing, and fish habitat. Restoration of these resources has been ongoing since the release of the MSRP Phase 1 Restoration Plan in 2005.

**National Ocean Service (NOS) - Tide Stations**

NOAA’s Center for Operational Oceanographic Products and Services (CO-OPS) operates 14 long-term, continuously operating tide stations in the state of California, which provide data and information on tidal datums, relative sea level trends, and are capable of producing real-time data for tsunami and storm surge warning. There are stations located at San Diego, La Jolla, Los Angeles, Santa Monica, Santa Barbara, Port San Luis, Monterey, San Francisco, Alameda, Point Reyes, Port Chicago, Arena Cove, North Spit, and Crescent City. NOS also operates a long-term station at the offshore Oil Platform Harvest in support of the TOPEX project, which serves as a validation point for satellite altimeters measuring sea level. NOS has also operated a station at Bolinas Lagoon for three years in support of local monitoring and restoration efforts.

**National Ocean Service (NOS) - IOOS Regional Association Central and Northern California**
U.S. IOOS® is an operational system and a network of regional partners responsible for regional observations, data management, modeling and analysis, education and outreach, and research and development. The overarching purpose of U.S. IOOS is to address regional and national needs for ocean data and information. IOOS regional partners provide coordination with regional stakeholders while contributing data and other outputs to the national system – supporting regional priorities while advancing national objectives. The Central and Northern California Ocean Observing System (CeNCOOS) is part of an evolving national framework of integrated coastal observing systems called the Integrated Ocean Observing System (IOOS).

Ocean observing uses various physical, biological and chemical sensing technologies to add to our knowledge of changing ocean conditions and to enhance coastal management, allowing for more informed decision-making. The geographic extent of CeNCOOS includes from Point Conception north to the California-Oregon border and from the coastline out to 200 nautical miles (the seaward extent of the Exclusive Economic Zone). CeNCOOS includes bays and estuaries in this region. Within the state, CeNCOOS collaborates closely with its neighboring Regional Association, the Southern California Coastal Ocean Observing System (SCCOOS), and the state agencies supporting coastal management activities.

**National Ocean Service (NOS) - IOOS Regional Association – Southern California**
U.S. IOOS® is an operational system and a network of regional partners responsible for regional observations, data management, modeling and analysis, education and outreach, and research and development. The overarching purpose of U.S. IOOS is to address regional and national needs for ocean data and information. IOOS regional partners provide coordination with regional stakeholders while contributing data and other outputs to the national system – supporting regional priorities while advancing national objectives. The Southern California Coastal Ocean Observing System (SCCOOS) brings together coastal observations in the Southern California Bight to provide information necessary to address issues in climate change, ecosystem preservation and management, coastal water quality, maritime operations, coastal hazards and national security. As a science-based decision support system, SCCOOS works interactively with its neighboring IOOS Regional Association to the north, the Central and Northern California Ocean Observing System (CeNCOOS), and local, state and federal agencies, resource managers, industry, policy makers, educators, scientists and the general public to provide data, models and products that advance our understanding of the current and future state of our coastal and global environment.

**National Ocean Service (NOS) - California Coastal Management Program**
The Coastal and Estuarine Land Conservation Program (CELCP) brings conservation partners together to protect coastal and estuarine lands considered important for their ecological, conservation, recreational, historical, or aesthetic values. To date CELCP has protected more than 100,000 acres of land nationally and awarded fourteen projects in California. The program provides state and local governments with matching funds to purchase significant coastal and estuarine lands, or conservation easements on these important lands that are threatened by development. Lands or conservation easements acquired with CELCP funds are protected in perpetuity so that they may be enjoyed by future generations. CELCP has created an interactive map highlighting information about completed projects in your state.

**National Ocean Service (NOS) - Coastal and Estuarine Land Conservation Program**
The Coastal and Estuarine Land Conservation Program (CELCP) brings together conservation partners to protect coastal and estuarine lands considered important for their ecological, conservation, recreational, historical or aesthetic values. The program provides state and local governments with matching funds to purchase significant coastal and estuarine lands, or conservation easements on these important lands that are threatened by development. Lands or conservation easements acquired with CELCP funds are protected in perpetuity so that they may be enjoyed by future generations. To date, the program has protected more than 95,000 acres of land nationally and 14 projects have been completed in California. CELCP was established in 2002 as a companion the *Coastal Zone Management Act* (CZMA) and reauthorized in 2009.

**National Ocean Service (NOS) - California Bay-Watershed Education and Training Program**
NOAA Bay-Watershed Education and Training (B-WET) Program is an environmental education program that promotes locally relevant, experiential learning in the K-12 environment. The primary delivery of B-WET is through competitive funding that promotes Meaningful Watershed Educational Experiences (MWEEs). B-WET currently serves seven areas of the country: California, Chesapeake Bay, Great Lakes, Gulf of Mexico, Hawai'i, New England, and the Pacific Northwest. The California B-WET program recognizes that knowledge and commitment built from firsthand experience, especially in the context of one's community and culture, is essential for achieving environmental stewardship. California B-WET responds to regional education and environmental priorities through local implementation of competitive grant funds.

**National Ocean Service (NOS) - West Coast Regional Office**
The West Coast Regional Office oversees management of and fosters coordination among the five national marine sanctuaries of the west coast, which together protects 12,682 square miles of ocean and coastal waters from Washington to southern California. The West Coast Regional Office is in Monterey, CA; each sanctuary office is noted geographically below. NOAA Sanctuaries West Coast Regional Office also manages B-WET Pacific Northwest; see Oregon and Washington “NOAA in your State” for a description of that program.

**National Ocean Service (NOS) - Marine Debris Projects and Partnerships**
The NOAA Marine Debris Program (MDP) leads national and international efforts to research, prevent, and reduce the impacts of marine debris. The program supports marine debris removal, education and outreach, and research projects in partnership with state and local agencies, tribes, non-governmental organizations, academia, and industry. In California, the MDP has two active marine debris prevention projects, the first is working with businesses and consumers to reduce commonly littered food and beverage packaging, and the second is an experiential marine debris educational program which will reach approximately 12,000 high school students in the San Francisco Bay Area. Two new marine debris displays will be installed at the San Francisco NERR and the Tijuana River NERR in 2016. The MDP Community-Based Removal Grant Program is funding fishermen-led removal of 750 Dungeness crab pots from Northern and Central California and a major debris removal and trash capture infrastructure upgrades in the Tijuana River watershed on the US side of the Mexico border.

**National Ocean Service (NOS) - Southwest Environmental Response Management Application**
Assessing important spatial information and designing successful restoration projects rely upon interpreting and mapping geographic information, including the location, duration, and impacts from oil spills, other hazardous materials, or debris released into the environment. Southwest ERMA® is an online mapping tool that integrates both static and real-time data, such as Environmental Sensitivity Index (ESI) maps, ship locations, weather, and ocean currents, in a centralized, easy-to-use format for environmental responders and decision makers. In the spring of 2013, Southwest ERMA, an online mapping tool for the coastal California region, was used in a large-scale, oil spill training drill in El Segundo, just outside of Los Angeles.

**National Ocean Service (NOS) - Analytical Response Team**
NOAA's Analytical Response Team (ART) works with Federal, academic, and state partners to respond to HAB and associated mortality events. They can provide rapid and accurate identification of harmful algae and their associated toxins to the management agencies responsible for, e.g. opening and closing fisheries, targeting monitoring, and responding to marine mammal mortality events. ART works nationally, processing samples and providing expertise upon request. This year ART has responded to events related to harmful algal blooms on the West Coast.

**National Ocean Service (NOS) - Phytoplankton Monitoring Network**
The Phytoplankton Monitoring Network (PMN) engages volunteers in monitoring for marine phytoplankton and HABs. Data collected by PMN volunteers is used to better understand species composition and distribution in coastal and Great Lakes waters, and to identify areas for further research and monitoring. Through this program, we have alerted managers to previously undetected toxins in commercial shellfish beds, and the potential for human Amnesic Shellfish Poisoning and domoic acid toxicity in marine animals. This year PMN is active along the West Coast from CA to AK, in Lake Erie, in the Gulf of Maine, and the Gulf of Mexico.

**National Weather Service (NWS) - California Buoys**
The National Weather Service (NWS), through its National Data Buoy Center (NDBC), develops, deploys, operates, and maintains the current national data buoy network of moored and drifting weather buoys and land stations that serve all of the Nation's coastal states and territories. Within this network, 110 of the buoys and 51 of the land stations are maintained directly by NDBC. Located at NASA's Stennis Space Center in Mississippi, supports weather and marine warning and forecast services in real time by providing deep ocean and coastal meteorological and oceanographic observations. These data provide valuable information used by NWS supercomputers to produce computer-generated model forecasts of the atmosphere and climate. NDBC manages the Volunteer Observing Ship program to acquire additional meteorological and oceanographic observations supporting NWS mission requirements. NDBC also supports operational and research programs of NOAA and other national and international organizations.

NDBC also operates NOAA's network of Deep-ocean Assessment and Reporting of Tsunami (DART®) stations, for the early detection and real-time reporting of tsunamis in the open ocean. Data from the DART®s are used by the National Weather Service Tsunami Warning Centers in Alaska and Hawaii to provide tsunami forecasts, warnings, and information. NDBC also operates the Tropical Atmosphere Ocean Array of buoys in the tropical Pacific. The TAO/TRITON array consists of approximately 70 moorings in the Tropical Pacific Ocean, telemetering oceanographic and meteorological data to shore in real-time via the Argos satellite system. The array is a major component of the El Niño/Southern Oscillation (ENSO) Observing System, the Global Climate Observing System (GCOS) and the Global Ocean Observing System (GOOS). These data provide valuable information used by NWS supercomputers to produce computer generated model forecasts of the atmosphere, and climate.

### *CA-1*
### *Arcata*
**National Ocean Service (NOS) - Humboldt Bay PORTS®**
A new Physical Oceanographic Real-Time System (PORTS®) in Humboldt Bay, California through a partnership with the Humboldt Bay Harbor, Recreation and Conservation District and the Center for Operational Oceanographic Products (CO-OPS) is now operational. The new coastal ocean observing system in Humboldt Bay will collect oceanographic data from four current meters, an existing long-term tide station belonging to CO-OPS' National Water Level Observation Network, and a wave buoy operated the Coastal Data Information Program. The Humboldt Bay PORTS® will monitor currents, waves, water levels, and meteorological factors in real-time in order to improve navigation safety and aid in the protection of public health from any potential hazardous material spills.

### *Redding*

**National Environmental Satellite, Data, and Information Service (NESDIS) and Office of Oceanic and Atmospheric Research (OAR) - U.S. Climate Reference Network**

The U.S. Climate Reference Network (USCRN) is an operationally viable research network of 134 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS).

### *CA-1, 2*

### *Bodega Bay, Cazadero, Chico*

**Office of Oceanic and Atmospheric Research (OAR) - Weather-Climate Connection Measurements**

The NOAA/ESRL Physical Sciences Division supports long term measurements of coastal weather phenomena at three sites: Bodega Bay, Cazadero, and Point Piedras Blancas. These sites measure key phenomena associated with winter weather, fog, fire weather, air quality, and a host of other applications at the interface of weather and climate. Observations from these sites are made available to the public on the internet and they have led to dozens of research publications in the peer-reviewed literature.

### *CA-2*

### *Arcata*

**National Marine Fisheries Service (NMFS) - Northern California Pacific Coast Ocean Observing System Coordination Office**

Located at the Humboldt State University Marine Laboratory, the Northern California Pacific Coast Ocean Observing System Coordination Office, part of the Southwest Fisheries Science Center's Fishery Ecology Division, is charged with leading and facilitating ocean observing activities and research on fisheries and oceanography off the North Coast of California, a historically understudied region of the California Current System. This collaborative effort between the Southwest Fisheries Science Center and Humboldt State University also provides opportunities for graduate student training and enhances educational programs directly linked to the NMFS mission.

**National Marine Fisheries Service (NMFS) - California Coastal Area Office**

The California Coastal Area Office includes three offices located in Arcata, Santa Rosa, and Long Beach. Our responsibilities focus on protecting species and their habitats along the California coastline and its associated watersheds, including the entire Klamath River Basin. We work to protect species listed under Endangered Species Act by evaluating the impacts of proposed federal actions, developing and implementing recovery plans, ensuring safe fish passage through federal and some private dams and seeking conservation partnerships with local governments and landowners. Using local, on-the-ground knowledge, our priorities focus on land use practices and other threats that limit particular recovery and restoration activities. We work with local communities and a diverse group of stakeholders to ensure that mutually beneficial conservation strategies are realized.

### *Bodega Bay*

**National Environmental Satellite, Data, and Information Service (NESDIS) and Office of Oceanic and Atmospheric Research (OAR) - U.S. Climate Reference Network**

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### *Eureka*

**National Weather Service (NWS) - Weather Forecast Office**

Located in Eureka, this NWS Weather Forecast Office (WFO) is staffed around-the-clock every day, and provides the best possible weather, water, and climate forecasts and warnings to residents of northwestern California (Del Norte, Humboldt, Trinity, and Mendocino counties). Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, winter storms, floods, and heat waves. This essential information is provided to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including through dedicated government channels, satellite, the Internet, and NOAA Weather Radio All Hazards.

Forecasters also provide Impact-based Decision-Support Services (IDSS), both remotely and on-site, during critical emergencies, such as wildfires, floods, chemical spills, and for major recovery efforts such as those following the Joplin and Moore tornadoes, Hurricanes Katrina and Sandy, and the Sept. 11, 2001, terrorist attacks in New York City and Washington D.C. The WFO collects and disseminates precipitation, river, and rainfall data, and prepares local climatological data. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs, which helps build strong working relationships with local partners in emergency management, government, the media and academic communities. The WFO operates Automated Surface Observing Stations (ASOS), as well as the local Doppler Weather Radar, which provides critical information about current weather conditions. The radar data enables forecasters to issue warnings for tornadoes, severe thunderstorms, and flash floods.

**Office of Oceanic and Atmospheric Research (OAR) - Cooperative Institute for Marine Ecosystems and Climate**

Established in 2010, the Cooperative Institute for Marine Ecosystems and Climate **(**CIMEC) conducts collaborative research through a seven-team consortium of academic institutions in the Southern California region. CIMEC fosters collaborative research between NOAA scientists, academic scientists and students at the various member institutions. CIMEC is administratively housed at the Scripps Institution of Oceanography at the University of California, San Diego (SIO/UCSD), and is comprised of California State University, Los Angeles (CSU LA), Humboldt State, University of California, Davis (UC Davis), University of California, Los Angeles (UCLA), University of California, Santa Barbara (UCSB), and University of California, Santa Cruz (UCSC). CIMEC conducts research across four scientific themes: (1) Climate and Coastal Observations, Analysis, and Prediction, (2) Climate Research and Impacts, (3) Marine Ecosystems, and (4) Ecosystem Management.

### *Point Reyes Station*

**National Ocean Service (NOS) - Cordell Bank National Marine Sanctuary**

The Cordell Bank National Marine Sanctuary (CBNMS) was established in 1989 to protect and conserve a 529 square mile area of extraordinary ocean productivity off northern California. Sanctuary boundaries were expanded in 2015 to protect 1286 square miles of a coastal upwelling system. The sanctuary works with the West Coast region and the national program, implementing ecosystem based management that considers coastal communities, maritime commerce, ocean habitat, water quality and a thriving community of resident and migratory fishes, invertebrates, marine mammals, seabirds and turtles. Sanctuary programs include an active monitoring effort to track climate change and ecosystem health, cooperative research with local universities to understand critical ocean issues, education and outreach programs for teachers, schools and local communities to increase ocean awareness and stewardship, and resource protection efforts to educate and enforce sanctuary regulations. Field studies in 2015 revealed warming ocean waters and wildlife observations indicative of predicted El Niño. The sanctuary relies on input from a citizen advisory council representing sanctuary constituent groups who provide advice on sanctuary activities and management actions. By addressing current management issues and anticipating future challenges, we strive to maintain a healthy marine environment for this and future generations.

**Office of Oceanic and Atmospheric Research (OAR) - Science On a Sphere®**
Science On a Sphere (SOS) is a room-sized global display system that uses computers and video projectors to display planetary data onto a six-foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain complex environmental processes in a way that is simultaneously intuitive and captivating.

### *Trinidad*

**Office of Oceanic and Atmospheric Research (OAR) - Carbon Cycle Gases and Halocarbons**
NOAA's Earth System Research Laboratory (ESRL) operates a small aircraft-based North American network of sampling sites to measure vertical profiles of important greenhouse gas concentrations. Air is sampled above the surface up to approximately 25,000 feet above sea level using a relatively small, light, and economical automated system developed by ESRL researchers. These air samples are delivered to the ESRL laboratory in Boulder, Colorado for measurements of CO2, CH4, and other greenhouse gasses. This data will improve understanding and models of the global carbon cycle. Sampling is conducted bi-weekly. Some air samples from the small aircraft program are also analyzed for halocarbon gases that can destroy the stratospheric ozone layer. Halocarbon measurements help determine the effectiveness of efforts to protect and restore the ozone layer so it can protect us from the sun's ultraviolet radiation.

**Office of Oceanic and Atmospheric Research (OAR) - Halocarbon Measurements**
NOAA's Earth System Research Laboratory (ESRL) operates a sampling network to measure the distribution and trends of the gases most responsible for human-caused depletion of the stratospheric ozone layer. Weekly samples are collected in high-pressure flasks at fixed locations. The air sample flasks are delivered to the ESRL laboratory, located in Boulder, CO for analysis. Some locations conduct continuous surface measurements on site. Halocarbon measurements help determine the effectiveness of efforts to protect and restore the ozone layer - so it can protect us from the sun's ultraviolet radiation.

**Office of Oceanic and Atmospheric Research (OAR) - Ozone Measurements**
ESRL conducts long-term monitoring of stratospheric ozone with balloons. Stratospheric ozone measurements provide data relevant to: surface pollution events, lower and upper atmosphere mixing dynamics, boundary layer stability, ozone trend studies (vertical distribution), and temperature and pressure profiles. ESRL also conducts long-term monitoring of ozone at the surface, with aircraft, and with balloons, through cooperative relationships with local partners. The ESRL Tropospheric Ozone Aircraft Measurement program is being done in conjunction with the Carbon Cycle and Greenhouse Gas (CCGG) group's existing aircraft sampling network. Aircraft based in-situ tropospheric ozone measurements provide data relevant to: pollution events, lower atmosphere mixing dynamics, boundary layer stability, ozone trend studies, and the validity of other samples collected in-flight. Near ground level ozone is currently monitored using ultraviolet absorption photometers at eight sites that are generally representative of background conditions. These sites, four of which have records exceeding 25 years in length, provide information on possible long-term changes in tropospheric ozone near the surface and support air quality research.

**Office of Oceanic and Atmospheric Research (OAR) - Surface Aerosol Monitoring**
NOAA's Earth System Research Laboratory (ESRL) operates surface-based aerosol monitoring sites in seven states and one territory (Puerto Rico). ESRL's aerosol monitoring capabilities include continental sites in response to the finding that human activities primarily influence aerosols on regional/continental scales rather than on global scales. Aerosols create a significant perturbation of the Earth's radiative balance on regional scales. The measurements made include aerosol optical properties (how the particles absorb and scatter solar radiation), aerosol number concentration and chemical composition of the aerosol particles.

**Office of Oceanic and Atmospheric Research (OAR) - Trinidad Head Observatory**
The Trinidad Head Observatory is one of six baseline observatories supported by NOAA's Climate Observations and Analysis Program and operated by the NOAA's Office of Oceanic and Atmospheric Research, Earth System Research Laboratory, located in Boulder, CO. The Trinidad Head Observatory was installed in 2001 to monitor the air entering the west coast of the United States that is now being impacted by effluents of anthropogenic aerosols and gases from the burgeoning Asian economies. The observatory is operated in cooperation with Humboldt State University. Ozone is measured at the surface at Trinidad Head and in the total column above the observatory.

### *CA-2, 3*
### *San Francisco, San Rafael, Suisun*
**National Ocean Service (NOS) - San Francisco Bay National Estuarine Research Reserve**
San Francisco Bay National Estuarine Research Reserve is a partnership among NOAA, San Francisco State University, California State Parks, and the Solano Land Trust. The reserve's headquarters are located at the Romberg Tiburon Center and comprised of two of the most pristine wetlands that remain in the San Francisco Bay estuary. The 3,710 acres composing the reserve are located at two sites, China Camp State Park and Suisun Marsh. Designated in 2003, the San Francisco Bay research reserve promotes scientific research, education, stewardship, and wetland restoration.

### *CA-3*
### *Davis*
**Office of Oceanic and Atmospheric Research (OAR) - Cooperative Institute for Marine Ecosystems and Climate**
Established in 2010, the Cooperative Institute for Marine Ecosystems and Climate **(**CIMEC) conducts collaborative research through a seven-team consortium of academic institutions in the Southern California region. CIMEC fosters collaborative research between NOAA scientists, academic scientists and students at the various member institutions. CIMEC is administratively housed at the Scripps Institution of Oceanography at the University of California, San Diego (SIO/UCSD), and is comprised of California State University, Los Angeles (CSU LA), Humboldt State, University of California, Davis (UC Davis), University of California, Los Angeles (UCLA), University of California, Santa Barbara (UCSB), and University of California, Santa Cruz (UCSC). CIMEC conducts research across four scientific themes: (1) Climate and Coastal Observations, Analysis, and Prediction, (2) Climate Research and Impacts, (3) Marine Ecosystems, and (4) Ecosystem Management.

### *Walnut Grove*
**Office of Oceanic and Atmospheric Research (OAR) - Tall Tower Carbon Measurements**
NOAA's Earth System Research Laboratory (ESRL) operates trace gas monitoring sites at tall television transmitter towers in eight states, including California. The sites were established to extend ESRL's monitoring network into the interior of North America in order to provide data to aid estimation of the net carbon balance of the continent. Variations of trace gases, especially carbon dioxide, are largest near the ground, so we utilize existing tall (> 400 meter) transmitter towers as platforms for in situ and flask sampling for atmospheric trace gases.

**Office of Oceanic and Atmospheric Research (OAR) - Cooperative Global Air Sampling Network**
NOAA's Earth System Research Laboratory (ESRL) operates a Cooperative Global Air Sampling Network to measure the distribution and trends of carbon dioxide (CO2) and methane (CH4), the two gases most responsible for human-caused climate change, as well as other greenhouse gases and volatile organic compounds. Samples are collected weekly at fixed locations and on several commercial ships. The air samples are delivered to the ESRL laboratory, located in Boulder, CO. The samples collected at Walnut Grove represent air that has been over the Pacific Ocean, upwind of North America, for days or weeks. These measurements help determine the magnitude of carbon sources and sinks in North America.

**Office of Oceanic and Atmospheric Research (OAR) - Halocarbon Measurements**
NOAA's Earth System Research Laboratory (ESRL) operates a sampling network to measure the distribution and trends of the gases most responsible for human-caused depletion of the stratospheric ozone layer. Weekly samples are collected in high-pressure flasks at fixed locations. The air sample flasks are delivered to the ESRL laboratory, located in Boulder, CO for analysis. Some locations conduct continuous surface measurements on site. Halocarbon measurements help determine the effectiveness of efforts to protect and restore the ozone layer - so it can protect us from the sun's ultraviolet radiation.

### *CA-4*
### *Yosemite Village*
**National Environmental Satellite, Data, and Information Service (NESDIS) and Office of Oceanic and Atmospheric Research (OAR) - U.S. Climate Reference Network**
The U.S. Climate Reference Network (USCRN) is an operationally viable research network of 134 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS).

### *CA-5*
### *Santa Rosa*
**National Ocean Service (NOS), National Marine Fisheries Service (NMFS), Oceanographic and Atmospheric Research (OAR), and National Weather Service (NWS) - Russian River Watershed Habitat Focus Area**
The Russian River watershed was the first Habitat Focus Area selected under NOAA's Habitat Blueprint. Habitat Focus Areas are a non-regulatory, collaborative approach to habitat conservation that NOAA launched in 2013 to increase the effectiveness of NOAA's habitat conservation science and management efforts. Habitat Focus Areas are places where NOAA offices, working together with public and private sector partners, can achieve measurable habitat conservation results in three to five years. In the Russian River Habitat Focus Area, multiple offices within NOAA are joining an already active community of partners to make significant progress on three major objectives - rebuilding endangered coho and threatened steelhead stocks to sustainable levels through habitat protection and restoration; improving frost, rainfall, and river forecasts in the Russian River watershed through improved data collection and modeling; and increasing community resiliency to flooding damage through improved planning and water management strategies.

**National Marine Fisheries Service (NMFS) - California Coastal Area Office**
The California Coastal Area Office includes three offices located in Arcata, Santa Rosa, and Long Beach. Our responsibilities focus on protecting species and their habitats along the California coastline and its associated watersheds, including the entire Klamath River Basin. We work to protect species listed under Endangered Species Act by evaluating the impacts of proposed federal actions, developing and implementing recovery plans, ensuring safe fish passage through federal and some private dams and seeking conservation partnerships with local governments and landowners. Using local, on-the-ground knowledge, our priorities focus on land use practices and other threats that limit particular recovery and restoration activities.

**National Ocean Service (NOS) - Regional Resource Coordinator**
The Office of Response and Restoration's (OR&R) Regional Resource Coordinator (RRC) based in Santa Rosa provides scientific and technical expertise and timely response to oil spills or hazardous materials releases to collect information, samples, and evidence that are time dependent and critical to support natural resource damage assessments throughout the coastal US. Specifically, RRCs work on multi-disciplinary scientific, economic, and legal teams and are responsible for determining and quantifying injuries to NOAA trust natural resources through determination of injuries and pathway, and demonstration of causal mechanisms. RRCs document the severity, geographic extent, and likely duration of the injury. The goal of the RRCs efforts is to determine the appropriate amount and type of restoration required to restore injured NOAA trust resources and compensate the public for their lost use.

### *Sacramento*

**National Marine Fisheries Service (NMFS) - California Central Valley Area Office**
The California Central Valley Area Office is located in the heart of California's Central Valley, only a few blocks from the State Capitol. Our responsibilities focus on the Sacramento and San Joaquin River Basins and Sacramento-San Joaquin Delta. We work in these river basins to protect species listed under the Endangered Species Act by evaluating the impact of proposed federal actions, developing recovery plans, seeking conservation partnerships with local governments and landowners, and ensuring safe fish passage past federal and some private dams.

### *CA-2, 5*
### *Santa Rosa*

**Office of Oceanic and Atmospheric Research (OAR) - NOAA Hydrometeorology Testbed**
The NOAA Hydrometerology Testbed (HMT) conducts research on high-impact regional precipitation, weather and land surface conditions. HMT fosters transition of scientific advances and new tools into forecasting operations to better balance water resource demands and flood mitigation strategies in a changing climate.

### *CA-6, 8 (or 2, 12, 14)*
### *Bodega Bay, Pt. Reyes, San Francisco*

**National Ocean Service (NOS) - Greater Farallones National Marine Sanctuary Ocean Climate Center**
NOAA's Greater Farallones National Marine Sanctuary opened the Ocean Climate Center on October 26, 2010, at its headquarters in San Francisco. The Ocean Climate Center addresses the effects of climate change on the sanctuary and surrounding marine region through partnerships, research collaborations, outreach and education and policy actions; acts as an oceans and climate change communication center for the Bay Area; manages sanctuary ecosystems for resiliency; promotes green operations and facilities; and works within NOAA and with other Bay Area agencies and organizations to form an alliance to share resources and knowledge.

**National Ocean Service (NOS) - Greater Farallones National Marine Sanctuary and Visitor Center**
The Greater Farallones National Marine Sanctuary (GFNMS) protects an area of 3,295 square miles off the northern and central California coast. The waters within GFNMS are part of a nationally significant marine ecosystem, which encompasses a diversity of highly productive marine habitats, including open ocean, near shore tidal flats, rocky intertidal areas, estuarine wetlands, sub-tidal reefs**,** and coastal beaches. The sanctuary supports an abundance of species, including several that are threatened or endangered. The sanctuary is involved in conservation, education, research and stewardship activities to protect and manage sanctuary waters, which are some of the most productive in the world. GFNMS also has administrative jurisdiction over the northern portion of the Monterey Bay National Marine Sanctuary, from the San Mateo/Santa Cruz County line northward to the existing boundary between the two sanctuaries and maintains an office and public Visitor Center in San Francisco.

### *CA-7*
### *Sacramento*
**National Weather Service (NWS) - California-Nevada River Forecast Center**
Collocated with the NWS Weather Forecast Office in Sacramento, the California-Nevada River Forecast Center (CNRFC) performs continuous river basin modeling and provides hydrologic forecast and guidance products for rivers and streams and has responsibility for all river basins in California (except for the Colorado River drainage in the south), the Klamath River in southern Oregon, the Quinn River in southeast Oregon, and all river basins in Nevada (except for tributaries to the Snake River in the north, tributaries to the Colorado River in the southeast, and tributaries to the Great Salt Lake and Sevier Lake in the far east portion). These products include forecasts of river stage and flow, probabilistic river forecasts, reservoir inflow forecasts, gridded precipitation estimates and forecasts, spring flood outlooks, and flash flood and headwater guidance. Some of the RFCs in the western and central U.S. also provide water supply forecasts. RFCs work closely with local, state and federal water management agencies, including the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, and U.S. Geological Survey, to provide water and flood information for critical decisions (aka Impact-based Decision-Support Services or IDSS).

**National Weather Service (NWS) - Weather Forecast Office**
Located in Sacramento, this NWS Weather Forecast Office (WFO) is staffed around-the-clock every day, and provides the best possible weather, water, and climate forecasts and warnings to residents of most of interior northern California. This area extends roughly from Shasta Dam to Modesto and from the crest of the coastal mountains to the crest of the Sierra Nevada mountains. Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, winter storms, floods, and heat waves. This essential information is provided to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including through dedicated government channels, satellite, the Internet, and NOAA Weather Radio All Hazards.

Forecasters also provide Impact-based Decision-Support Services (IDSS), both remotely and on-site, during critical emergencies, such as wildfires, floods, chemical spills, and for major recovery efforts such as those following the Joplin and Moore tornadoes, Hurricanes Katrina and Sandy, and the Sept. 11, 2001, terrorist attacks in New York City and Washington D.C. The WFO collects and disseminates precipitation, river, and rainfall data, and prepares local climatological data. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs, which helps build strong working relationships with local partners in emergency management, government, the media and academic communities. The WFO operates Automated Surface Observing Stations (ASOS), as well as the local Doppler Weather Radar, which provides critical information about current weather conditions. The radar data enables forecasters to issue warnings for tornadoes, severe thunderstorms, and flash floods.

### *CA-7-13*
### *San Francisco Bay Area*
**National Ocean Service (NOS) - San Francisco Bay PORTS®**
A Physical Oceanographic Real-Time System (PORTS®) is operated cooperatively with the local maritime community in greater San Francisco Bay at which real-time data are quality-controlled and disseminated to local users for safe and efficient navigation. Real-time data are available for water levels from six stations, meteorological data from fifteen stations, current data from four stations, surface wave data from one station and visibility sensors at three locations that will help mariners determine fog conditions in the region and support safe navigation in the challenging San Francisco Bay marine environment.

**National Ocean Service (NOS)**
**Office of Coast Survey**
**Navigation Manager**
NOAA's navigation managers work directly with pilots, port authorities, and recreational boating organizations in California. They help identify the navigational challenges facing marine transportation in California and provide NOAA's resources and services that promote safe and efficient navigation. Navigation managers are on call to provide expertise and NOAA navigation response coordination in case of severe coastal weather events or other marine emergencies. The Office of Coast Survey has a navigation manager in Santa Barbara to support mariners and stakeholders on the West Coast.

### *CA-8*
### *San Francisco*
**National Ocean Service (NOS) - California Coastal Management Program**
Through a unique Federal-state partnership, NOAA's Office for Coastal Management (OCM) works with the California Coastal Commission, the San Francisco Bay Conservation and Development Commission, and the California Coastal Conservancy to implement the National Coastal Management Program in California. OCM provides these three state agencies with financial and technical assistance to further the goals of the *Coastal Zone Management Act* to protect, restore, and responsibly develop our nation's coastal communities and resources by balancing the often competing demands of coastal resource use, economic development and conservation.

California's coastal zone (outside of San Francisco Bay) generally extends 1,000 yards inland from the mean high tide line. In significant coastal estuarine habitat and recreational areas it extends inland to the first major ridgeline or five miles from the mean high tide line, whichever is less. Within the San Francisco Bay, the coastal zone includes the open water, marshes and mudflats, as well as areas 100 feet inland from the line of highest tidal action. The boundary also includes the Suisun marsh and buffer zone, managed wetlands diked off from the Bay and open waters diked off from the Bay and used in salt production.

### *Stovepipe Wells*
**National Environmental Satellite, Data, and Information Service (NESDIS) and Office of Oceanic and Atmospheric Research (OAR) - U.S. Climate Reference Network**
The U.S. Climate Reference Network (USCRN) is an operationally viable research network of 134 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS).

### *CA-10*
### *Modesto*
**Office of Oceanic and Atmospheric Research (OAR) - Science On a Sphere®**
Science On a Sphere (SOS) is a room-sized global display system that uses computers and video projectors to display planetary data onto a six-foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain complex environmental processes, in a way that is simultaneously intuitive and captivating.

### *CA-12*

### *San Francisco*

**Office of Oceanic and Atmospheric Research (OAR) - Cooperative Global Air Sampling Network**

NOAA's Earth System Research Laboratory (ESRL) operates a Cooperative Global Air Sampling Network to measure the distribution and trends of carbon dioxide (CO2) and methane (CH4), the two gases most responsible for human-caused climate change, as well as other greenhouse gases and volatile organic compounds. Samples are collected weekly at fixed locations and on several commercial ships. The air samples are delivered to the ESRL laboratory, located in Boulder, CO. The observed geographical patterns and small but persistent spatial gradients are used to better understand the processes, both natural and human induced, that underlie the trends. These measurements help determine the magnitude of carbon sources and sinks in North America. Site operated by Lawrence Berkeley National Laboratory at the Sutro Tower.

**Office of Oceanic and Atmospheric Research (OAR) - Science On a Sphere®**

Science On a Sphere (SOS) is a room-sized global display system that uses computers and video projectors to display planetary data onto a six-foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain complex environmental processes in a way that is simultaneously intuitive and captivating.

### *CA-13*

### *Alameda*

**National Ocean Service (NOS) - California Marine Debris Regional Coordinator**

The NOAA Marine Debris Program (MDP) supports national and international efforts to research, prevent, and reduce the impacts of marine debris. The California Regional Coordinator, based in the San Francisco Bay Area, supports coordination efforts with regional stakeholders, provides support to grant-funded projects, tracks progress of projects, and conducts regional marine debris outreach to local audiences. The California Regional Coordinator is on the Steering Committee for the West Coast Marine Debris Alliance which is tasked with implementing the West Coast Governors Alliance Marine Debris Strategy.

**National Ocean Service (NOS) - Geodetic Advisor**

The Geodetic Advisor is a jointly funded National Ocean Service (NOS) employee that resides in the state to provide liaison between NOS and the host state. The Geodetic Advisor guides and assists the state's charting, geodetic and surveying programs through technical expertise. The program is designed to fill a need for more accurate geodetic surveys, and is in response to the desire of states to improve their surveying techniques to meet Federal Geodetic Control subcommittee standards and specifications. The surveys provide the basis for all forms of mapping and engineering projects and monitoring of the dynamic Earth. This program also provides technical assistance in planning and implementing Geographic/Land Information System (GIS/LIS) projects.

### *Fremont*

**National Weather Service (NWS) - Center Weather Service Unit**

Housed in the Federal Aviation Administration's Oakland Air Traffic Control Center (ARTCC) in Freemont, the NWS Center Weather Service Unit (CWSU) staff provides aviation forecasts and other weather information to ARTCC personnel for their use in directing the safe, smooth flow of aviation traffic for most of northern California and western Nevada.

*San Jose, Berkeley*

**Office of Oceanic and Atmospheric Research (OAR) - Science On a Sphere®**

Science On a Sphere (SOS) is a global display system that uses computers and video projectors to display planetary data onto a six-foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain in a way that is simultaneously intuitive and captivating what are sometimes complex environmental processes. Science On a Sphere is located at the Tech Museum of Innovation in San Jose, and the Lawrence Hall of Science in Berkeley.

*CA–15*

*Livermore*

**Office of Oceanic and Atmospheric Research (OAR) - Program for Climate Model Diagnosis and Intercomparison**

The Geophysical Fluid Dynamics Laboratory (GFDL) is involved in the archiving of its climate model data at the Lawrence Livermore National Laboratory, located in Livermore, CA. Model data is archived for the purpose of intercomparison of climate model data obtained from other national and international climate modeling institutions around the world.

*CA-16*

*Merced*

**National Environmental Satellite, Data, and Information Service (NESDIS) and Office of Oceanic and Atmospheric Research (OAR) - U.S. Climate Reference Network**

The U.S. Climate Reference Network (USCRN) is an operationally viable research network of 134 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS).

*CA-17*

*Monterey*

**National Ocean Service (NOS) - Monterey Bay National Marine Sanctuary**

Monterey Bay National Marine Sanctuary is located almost 100 miles south of San Francisco along the northern central California coast. A remarkable diversity of marine habitats found nowhere else in North America is within the boundaries of the sanctuary and includes rugged rocky shores, sandy beaches, lush kelp forests, and most significantly, some of the deepest submarine canyons and the only protected seamount found on the Pacific continental shelf. The nutrient-rich currents nourishing the area make possible a diverse assemblage of marine life comprised of marine mammals, seabirds, shorebirds, turtles, numerous commercially-fished species and thousands of invertebrate species, including many that are threatened or endangered. While Monterey Bay National Marine Sanctuary's main office is located in Monterey, it also has offices in Santa Cruz and San Simeon.

**National Ocean Service (NOS) - National Marine Protected Areas Center**

The mission of the National Marine Protected Areas Center is to facilitate the effective use of science, technology, training and information in the planning, management and evaluation of the nation’s system of marine protected areas. The National Marine Protected Areas Center supports the nation’s federal, state and territorial marine protected area (MPA) programs through capacity building, science, information, tools and outreach. MPAs include National Marine Sanctuaries, National Estuarine Research Reserves, National Parks, National Wildlife Refuges, and the state counterparts to these programs. The Center is co-located with the Office of National Marine Sanctuaries West Coast Regional Office in Monterey.

**National Ocean Service (NOS) - Monterey County Hazard Mitigation Plan Update**
Monterey County, in coordination with all of its incorporated municipalities, is preparing a comprehensive update to its multi-jurisdictional hazard mitigation plan. Updating the 2013-2014 plan is being led by Monterey County's Office of Emergency Services, with collaborative assistance from others, including NOAA, FEMA, and the National Association of Counties (NACo). The process includes an update to all elements in the existing plan to better reflect current conditions, along with the incorporation of new information to help address the potential long-term effects of climate change and sea level rise. In support of this effort, Monterey County has been designated a national pilot community for incorporating resources from NOAA's Digital Coast into local hazard mitigation planning. As part of this project Monterey County will leverage the data, tools, and training made available through Digital Coast in their hazard mitigation plan update.

### *Santa Cruz*

**National Ocean Service (NOS) - Monterey Bay National Marine Sanctuary - Sanctuary Exploration Center**
The Sanctuary Exploration Center is located just steps from the Santa Cruz beach boardwalk and provides state-of-the-art, interactive interpretive exhibits to an anticipated 200,000 visitors annually. The Exploration Center also highlights environmentally sustainable design and construction methods.

**National Ocean Service (NOS) - Monterey Bay National Marine Sanctuary**
Monterey Bay National Marine Sanctuary has two office spaces in Santa Cruz, California, co-located with the National Marine Fisheries Service Lab.

## *CA-18*

### *Menlo Park*

**Office of Oceanic and Atmospheric Research (OAR)** - **Cooperative Institute for Ocean Exploration, Research, and Technology**
Established in 2009, the Cooperative Institute for Ocean Exploration, Research, and Technology (CIOERT), is a consortium led by the Harbor Branch Oceanographic Institute at Florida Atlantic University that includes the University of North Carolina - Wilmington, University of Miami and SRI International. CIOERT explores and studies the nation's ocean frontiers using innovation and cutting edge technologies under three research themes: (1) develop advanced underwater technologies, (2) explore and research the frontier regions of the eastern U.S. Continental Shelf and Slope and beyond, and (3) vulnerable deep and shallow coral ecosystems.

## *CA-20*

### *Carmel*

**National Marine Fisheries Service (NMFS) - Granite Canyon Marine Laboratory**
Located at Granite Canyon, eight miles south of Carmel, California, along the Big Sur coast, the Granite Canyon Marine Laboratory has been the site of NMFS' shore-based counts of southbound migrating gray whales since 1967. The University of California-Davis's Marine Pollution Studies Laboratory is also located at the site.

### *Monterey*

**National Marine Fisheries Service (NMFS) - Environmental Research Division**
The Climate and Ecosystem Program of the Southwest Fisheries Science Center's Environmental Research Division is located in Monterey, CA, to take advantage of its long association with the United States Navy's Fleet Numerical Meteorology and Oceanography Center. The research group was formed in 1969 to develop databases and to conduct research on fishery-related effects of environmental variability and climate change over a broad range of scientific, management, and operational concerns of the government and the fishing industry of the United States.

**National Weather Service (NWS) - Weather Forecast Office**

Located in Monterey, this NWS Weather Forecast Office (WFO) is staffed around-the-clock and provides the best possible weather, water, and climate forecasts and warnings to residents of 11 counties of coastal California (Napa, Sonoma, San Francisco, Marin, Contra Costa, Alameda, Santa Clara, Santa Cruz, San Benito, San Mateo and Monterey). Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, winter storms, floods, and heat waves. This information is provided to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated through dedicated government channels, satellite, the Internet, and NOAA Weather Radio All Hazards. Forecasters also provide Impact-based Decision-Support Services (IDSS), both remotely and on-site, during critical emergencies, such as wildfires, floods, chemical spills, and for major recovery efforts such as those following the Joplin and Moore tornadoes, Hurricanes Katrina and Sandy, and the Sept. 11, 2001, terrorist attacks in New York City and Washington D.C. The WFO collects and disseminates precipitation, river, and rainfall data, and prepares local climatological data. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs, which helps build strong working relationships with local partners. The WFO operates Automated Surface Observing Stations (ASOS), as well as the local Doppler Weather Radar, which provides critical information about current weather conditions. The radar data enables forecasters to issue warnings for tornadoes, severe thunderstorms, and flash floods.

### *Santa Cruz*

**National Marine Fisheries Service (NMFS) - Fisheries Ecology Division**

Located adjacent to University of California Santa Cruz Long Marine Laboratory, the Fisheries Ecology Division of the Southwest Fisheries Science Center (SWFSC) conducts research on Pacific coast groundfish and Pacific Salmon. Results of this research are used by the Pacific Fishery Management Council to manage fisheries and by NMFS to develop recovery plans for threatened and endangered species. Fisheries Ecology Division scientists study causes of variability in abundance and health of fish populations, analyze ecological relations in marine communities, and study the economics of exploiting and protecting natural resources. They also assess the status of stocks targeted by various fisheries and evaluate impacts of human activities on threatened or endangered species. The Santa Cruz laboratory also houses the Data Integration and Analysis Program of the SWFSC's Environmental Research Division. Program scientists maintain environmental and fisheries relevant data bases and distribute environmental index products and time series databases to cooperating researchers world-wide. The Data Integration and Analysis program also hosts the west coast regional node for the NOAA CoastWatch program, which provides rapid dissemination of satellite observation data to governmental, academic, commercial and public users

**Office of Oceanic and Atmospheric Research (OAR) - Cooperative Institute for Marine Ecosystems and Climate**

Established in 2010, the Cooperative Institute for Marine Ecosystems and Climate **(**CIMEC) conducts collaborative research through a seven-team consortium of academic institutions in the Southern California region. CIMEC fosters collaborative research between NOAA scientists, academic scientists and students at the various member institutions. CIMEC is administratively housed at the Scripps Institution of Oceanography at the University of California, San Diego, and is comprised of California State University, Los Angeles, Humboldt State, University of California, Davis, University of California, Los Angeles, University of California, Santa Barbara, and University of California, Santa Cruz. CIMEC conducts research across four scientific themes: (1) Climate and Coastal Observations, Analysis, and Prediction, (2) Climate Research and Impacts, (3) Marine Ecosystems, and (4) Ecosystem Management.

### *Watsonville*

**National Ocean Service (NOS) - Elkhorn Slough National Estuarine Research Reserve**

Elkhorn Slough National Estuarine Research Reserve was designated in 1979 and is located on the Central California coast halfway between Monterey and Santa Cruz. The reserve, 1,439 acres of wetland and upland habitat, contain rare and threatened marsh, mudflat, and estuarine habitats, all of which are important for several endangered species. The reserve conducts education programs for school groups, teachers, influential decision makers, and the public. It also supports a thriving volunteer program and fosters and conducts environmental monitoring and research by providing a "living laboratory" to gauge ecosystem health.

### *CA-21*

### *San Joaquin Valley/Hanford*

**National Weather Service (NWS) - Weather Forecast Office**

Located at Hanford Municipal Airport, this NWS Weather Forecast Office (WFO) in Hanford is staffed around-the-clock every day, and provides the best possible weather, water, and climate forecasts and warnings to residents of central interior California. Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, winter storms, floods, and heat waves. This essential information is provided to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including through dedicated government channels, satellite, the Internet, and NOAA Weather Radio All Hazards.

Forecasters also provide Impact-based Decision-Support Services (IDSS), both remotely and on-site, during critical emergencies, such as wildfires, floods, chemical spills, and for major recovery efforts such as those following the Joplin and Moore tornadoes, Hurricanes Katrina and Sandy, and the Sept. 11, 2001, terrorist attacks in New York City and Washington D.C. The WFO collects and disseminates precipitation, river, and rainfall data, and prepares local climatological data. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs, which helps build strong working relationships with local partners in emergency management, government, the media and academic communities. The WFO operates Automated Surface Observing Stations (ASOS), as well as the local Doppler Weather Radar, which provides critical information about current weather conditions. The radar data enables forecasters to issue warnings for tornadoes, severe thunderstorms, and flash floods.

### *Hanford*

**Office of Oceanic and Atmospheric Research (OAR) - Surface Radiation Measurement Network**

NOAA’s Earth System Research Laboratory (ESRL) operates surface-based radiation monitoring sites in seven states. ESRL’s Integrated Surface Irradiance Study (ISIS) monitoring network is based in the continental United States and is collaboration with NOAA's SURFRAD Network.

**Office of Oceanic and Atmospheric Research (OAR) - Total Column Ozone Measurements**

NOAA's Earth System Research Laboratory (ESRL) makes measurements of the column amounts of ozone between the earth's surface and the top of the atmosphere at a number of locations around the United States, including Hanford, CA. The observations are obtained with ground-based spectrometers that measure the attenuation by ozone of ultraviolet light.

### *CA-23*
### *San Simeon*
**National Ocean Service (NOS) - Monterey Bay National Marine Sanctuary**
Monterey Bay National Marine Sanctuary's southernmost office is in San Simeon, California. The office is also home to the Coastal Discovery Center, a visitor center jointly operated with California State Parks, located at William Randolph Hearst Memorial Beach. The Coastal Discovery Center's primary function is to provide education and outreach to the general public and school groups about the natural and cultural resources of coastal California and serve as a hub for a variety of marine conservation activities.

### *CA-23 & CA-24*
### *Santa Barbara and Ventura*
**National Ocean Service (NOS) - Channel Islands National Marine Sanctuary**
Often referred to as the "American Galapagos," the 1,470 square-mile Channel Islands National Marine Sanctuary, surrounding San Miguel, Santa Rosa, Santa Cruz, Anacapa and Santa Barbara islands, hosts 27 species of whales and dolphins, five species of seals and sea lions, and more than 60 species of seabirds. Rich cultural resources exist as well, such as prehistoric artifacts from early island residents, the remains of more than 100 historic shipwrecks, and living maritime heritage values of contemporary indigenous Chumash people. Experience the sanctuary first-hand through commercial vessel excursions leaving from Santa Barbara, Ventura or Channel Islands harbors.

In Santa Barbara, learn more about the sanctuary through exhibits at the Santa Barbara Maritime Museum, Ty Warner Sea Center, and Santa Barbara Outdoors Visitor Center. In Ventura County, visit the new Channel Islands Boating Center or the Channel Islands National Park Visitors Center. Coming in the future will be the Outreach Center for Teaching Ocean Science (UC Santa Barbara). The new main office for the sanctuary is located at UC Santa Barbara. Two NOAA research vessels are home-ported at Santa Barbara Harbor. Programs address protecting sensitive resources, conducting marine science, community involvement and outreach, and numerous education programs.

### *CA-24*
### *San Simeon*
**National Marine Fisheries Service (NMFS) - Piedras Blancas Field Station**
Since 1994, scientists from the Southwest Fisheries Science Center's Protected Resources Division have been monitoring the northbound migration of gray whale cows and calves from Piedras Blancas, a point of land just north of San Simeon, and just south of the Big Sur coast. The field site, once used as a lookout point to spot animals during the whaling era, is also home to the Piedras Blancas Light Station and is situated on Bureau of Land Management property. The site is ideal because the whales generally pass within 200 m of the point and often stop to nurse their young in the lee of the rocky point. The survey data has been used to assess variability in annual calf production and to investigate the relationship of this variability to environmental conditions in the Arctic where these whales feed.

### *Santa Barbara*
**National Environmental Satellite, Data, and Information Service (NESDIS) and Office of Oceanic and Atmospheric Research (OAR) - U.S. Climate Reference Network**
The U.S. Climate Reference Network (USCRN) is an operationally viable research network of 134 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS).

**Office of Oceanic and Atmospheric Research (OAR) - Cooperative Institute for Marine Ecosystems and Climate**
Established in 2010, the Cooperative Institute for Marine Ecosystems and Climate **(**CIMEC) conducts collaborative research through a seven-team consortium of academic institutions in the Southern California region. CIMEC fosters collaborative research between NOAA scientists, academic scientists and students at the various member institutions. CIMEC is administratively housed at the Scripps Institution of Oceanography at the University of California, San Diego (SIO/UCSD), and is comprised of California State University, Los Angeles (CSU LA), Humboldt State, University of California, Davis (UC Davis), University of California, Los Angeles (UCLA), University of California, Santa Barbara (UCSB), and University of California, Santa Cruz (UCSC). CIMEC conducts research across four scientific themes: (1) Climate and Coastal Observations, Analysis, and Prediction, (2) Climate Research and Impacts, (3) Marine Ecosystems, and (4) Ecosystem Management.

### *Vandenberg AFB*

**National Environmental Satellite, Data, and Information Service (NESDIS) - Office of Satellite Data Processing and Distribution**
Vandenberg Air Force Base is the site of many satellite launches for military and commercial organizations. Along with launches, it also houses two NOAA Search and Rescue Satellite Aided Tracking (SARSAT) antenna and associated ground equipment. These ground systems, referred to as Local User Terminals (LUTs) can receive signals, relayed through polar orbiting satellites, from ships, aircraft or individuals in distress. The location of the distress signal is automatically forwarded to the SARSAT Mission Control Center, which notifies the appropriate Rescue Coordination Center. SARSAT is part of an international humanitarian effort helping to improve the rescue of person's in distress and has saved more than 6,000 lives in the United States since 1982.

## *CA-25*

### *Palmdale*

**National Weather Service (NWS) - Center Weather Service Unit**
Housed in the Federal Aviation Administration's Los Angeles Air Traffic Control Center (ARTCC) in Palmdale, the NWS Center Weather Service (CWSU) staff provides aviation forecasts and other weather information to ARTCC personnel for their use in directing the safe, smooth flow of aviation traffic in Southern California and parts of Arizona, Nevada and Utah.

**Office of Oceanic and Atmospheric Research (OAR) - Halocarbon Measurements**
Atmospheric Tomography (ATOM) project to study the impact of human-produced air pollution on certain greenhouse gases. Airborne instruments will look at how atmospheric chemistry is transformed by various air pollutants and at the impact on methane and ozone which affect climate. Flights aboard NASA's DC-8 will originate from the Armstrong Flight Research Center in Palmdale, California, fly north to the western Arctic, south to the South Pacific, east to the Atlantic, north to Greenland, and return to California across central North America. Project is led by Harvard University and funded by NASA.

## *CA-26*

### *Los Angeles Basin*

**National Weather Service (NWS)**
**Weather Forecast Office**
Located in the City of Oxnard, this NWS Weather Forecast Office (WFO) is staffed around-the-clock every day, and provides the best possible weather, water, and climate forecasts and warnings to residents of southwestern California, including the counties of Los Angeles, Ventura, Santa Barbara and San Luis Obispo. Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, winter storms, floods, and heat waves. This essential information is provided to the general public, media, emergency management and law enforcement

officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including through dedicated government channels, satellite, the Internet, and NOAA Weather Radio All Hazards. Forecasters also provide Impact-based Decision-Support Services (IDSS), both remotely and on-site, during critical emergencies, such as wildfires, floods, chemical spills, and for major recovery efforts. The WFO collects and disseminates precipitation, river, and rainfall data, and prepares local climatological data. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs, which helps build strong working relationships with local partners in emergency management, government, the media and academic communities. The WFO operates Automated Surface Observing Stations (ASOS), as well as the local Doppler Weather Radar, which provides critical information about current weather conditions.

**Office of Oceanic and Atmospheric Research (OAR) - Cooperative Global Air Sampling Network**
NOAA's Earth System Research Laboratory (ESRL) operates a Cooperative Global Air Sampling Network to measure the distribution and trends of carbon dioxide (CO2) and methane (CH4), the two gases most responsible for human-caused climate change, as well as other greenhouse gases and volatile organic compounds. Samples are collected weekly at fixed locations and on several commercial ships. The air samples are delivered to the ESRL laboratory, located in Boulder, CO. The observed geographical patterns and small but persistent spatial gradients are used to better understand the processes, both natural and human induced, that underlie the trends. These measurements help determine the magnitude of carbon sources and sinks in North America. Sites co-operated by NASA/Jet Propulsion Laboratory as part of the CA MegaCities Carbon Project in the LA-basin at the three different towers (USC, Cal State Fullerton, Granada Hills).

### *CA–27*
### *Mt. Wilson*
**Office of Oceanic and Atmospheric Research (OAR) - Cooperative Global Air Sampling Network**
NOAA's Earth System Research Laboratory (ESRL) operates a Cooperative Global Air Sampling Network to measure the distribution and trends of carbon dioxide (CO2) and methane (CH4), the two gases most responsible for human-caused climate change, as well as other greenhouse gases and volatile organic compounds. Samples are collected weekly at fixed locations and on several commercial ships. The air samples are delivered to the ESRL laboratory, located in Boulder, CO. The observed geographical patterns and small but persistent spatial gradients are used to better understand the processes, both natural and human induced, that underlie the trends. These measurements help determine the magnitude of carbon sources and sinks in North America. The site is operated by Lawrence Berkeley National Laboratory at the Sutro Tower.

### *CA–32*
### *Los Angeles*
**NOAA Office of Education - NOAA Cooperative Remote Sensing Science and Technology Center**
The NOAA Cooperative Remote Sensing Science and Technology Center (CREST) is led by the City College of the City University of New York in collaboration with Hampton University, the University of Maryland-Baltimore County, the University of Puerto Rico at Mayaguez, California State University-Los Angeles and corporate partners including Raytheon and Northrop Grumman. CREST is part of NOAA's Educational Partnership Program with Minority Serving Institutions. CREST's research into cutting edge remote sensing applications supports NOAA climate, weather and water, and ecosystem goals. The Center's research focuses on all aspects of remote sensing - sensor development, satellite remote sensing, ground-based field measurements, data processing and analysis, modeling, and forecasting. CREST trains students in science and engineering with a focus on underrepresented minorities in NOAA related sciences. CREST's primary collaborator at NOAA is the National Environmental Satellite, Data, and Information Service, and CREST research is also aligned with the needs of NOAA's National Weather Service and Office of Oceanic and Atmospheric Research.

**Office of Oceanic and Atmospheric Research (OAR) - Cooperative Institute for Marine Ecosystems and Climate**
Established in 2010, the Cooperative Institute for Marine Ecosystems and Climate **(**CIMEC) conducts collaborative research through a consortium of academic institutions in the Southern California region. CIMEC fosters collaborative research between NOAA scientists, academic scientists and students at the various member institutions. CIMEC is administratively housed at the Scripps Institution of Oceanography at the University of California, San Diego, and is comprised of California State University, Los Angeles, Humboldt State, University of California, Davis, University of California, Los Angeles, University of California, Santa Barbara, and University of California, Santa Cruz. CIMEC conducts research across four scientific themes: (1) Climate and Coastal Observations, Analysis, and Prediction, (2) Climate Research and Impacts, (3) Marine Ecosystems, and (4) Ecosystem Management.

***CA-36, 37, 46***
***Los Angeles and Long Beach***
**National Ocean Service (NOS) - PORTS®**
A Physical Oceanographic Real-Time System (PORTS®) is operated cooperatively with the Los Angeles/Long Beach Pilots Association and the local maritime community in the metropolitan Los Angeles/Long Beach area at which real-time data are quality-controlled and disseminated to local users for safe and efficient navigation. Real-time data are available for water levels from one station, meteorological data from eight stations, surface wave data from two stations, and bridge air gap data from one station.

***CA-46***
***Santa Ana***
**Office of Oceanic and Atmospheric Research (OAR) - Science on a Sphere**
Science On a Sphere (SOS) is a room-sized global display system that uses computers and video projectors to display planetary data onto a six-foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain complex environmental processes in a way that is simultaneously intuitive and captivating.

***Sylmar***
**Office of Oceanic and Atmospheric Research (OAR) - Science on a Sphere**
Science On a Sphere (SOS) is a room-sized global display system that uses computers and video projectors to display planetary data onto a six-foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain complex environmental processes in a way that is simultaneously intuitive and captivating.

***CA-47***
***Long Beach***
**National Marine Fisheries Service (NMFS) - National Seafood Inspection Program**
The National Seafood Inspection Program conducts a voluntary inspection program for fishery products on a fee-for-service basis. The office offers a wide range of services to the seafood industry (fishermen, wholesalers, processors, retailers, importers and exporters) including process and product inspection, product grading, lot inspection, laboratory analysis, and training. Export health certificates as required by most countries are issued for U.S. exporters. All edible foodstuffs, ranging from whole fish to formulated products, as well as fishmeal and animal feeds, are eligible for inspection and certification.

**National Marine Fisheries Service (NMFS) - Long Beach Office**
NOAA Fisheries is dedicated to protecting and preserving our nation's living marine resources through scientific research, fisheries management, enforcement, and habitat conservation. The West Coast Region of NOAA Fisheries administers fisheries programs along the coasts of Washington, Oregon and California; and in the vast inland habitats of Washington, Oregon, California and Idaho. We work to conserve, protect, and manage salmon and marine mammals under the Endangered Species Act and Marine Mammal Protection Act, and sustainably manage West Coast fisheries as guided by the Magnuson-Stevens Fisheries Conservation Act.

**Office of Oceanic and Atmospheric Research (OAR) - Science On a Sphere®**
Science On a Sphere (SOS) is a room-sized global display system that uses computers and video projectors to display planetary data onto a six-foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain complex environmental processes in a way that is simultaneously intuitive and captivating.

### *CA-49, 52*
### *La Jolla*
**National Ocean Service (NOS) - California Spatial Reference Center**
In a model partnership with NOAA, the California Spatial Reference Center (CSRC) serves as a way of providing a spatial referencing liaison between Federal and local authorities. The Center is a non-profit organization affiliated with the Scripps Institution of Oceanography of the University of California-San Diego. The mission of the Center is to provide the necessary geodetic services to ensure the availability of accurate, consistent, and timely spatial referencing data for California. In partnership with several other organizations, CSRC has developed a plan to establish and maintain a state-of-the-art network of GPS control stations necessary for a reliable spatial reference system in California.

### *CA-50*
### *Fallbrook*
**National Environmental Satellite, Data, and Information Service (NESDIS) and Office of Oceanic and Atmospheric Research (OAR) - U.S. Climate Reference Network**
The U.S. Climate Reference Network (USCRN) is an operationally viable research network of 134 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS).

### *CA-51*
### *Imperial Beach*
**National Ocean Service (NOS) - Tijuana River National Estuarine Research Reserve**
This research reserve was designated in 1982 and is jointly managed by the California Department of Parks and Recreation U.S. Fish and Wildlife Service, San Diego County, and NOAA. The program preserves one of the largest remaining examples of coastal wetland habitats in southern California. The 2,293 acre site is located in Imperial Beach, Calif., 15 miles south of San Diego and immediately adjacent to Tijuana, Mexico. Three quarters of the reserve's watershed is in Mexico, so reserve programs apply an international perspective to critical issues of habitat restoration, endangered species management, wastewater from Mexico, sediment management, and recreational use. The reserve is a home to eight threatened and endangered species of plants and birds and is recognized as a 'wetland of international importance' by the Ramsar Convention.

### *San Diego*

**National Marine Fisheries Service (NMFS) - San Diego Port Facility**

The San Diego Port Facility provides storage for sea-going sampling equipment, berthing for the Southwest Fisheries Science Center's small boat fleet and provides office space and parking for sea-going personnel and activities. The facility is located within the Port of San Diego's 10th Avenue Terminal. The new facility opened in 2014.

**Office of Marine and Aviation Operations (OMAO) - NOAA Ship *Reuben Lasker***

NOAA's newest fisheries survey vessel, the NOAA Ship *Reuben Lasker*, is homeported in San Diego within the Port of San Diego's 10th Avenue Terminal, and is managed by the OMAO Marine Operations Center-Pacific in Newport, Oregon. The fifth of the Oscar Dyson class vessels the NOAA *Lasker* primarily supports fish, marine mammals and turtle surveys off the U.S. West Coast and in the eastern tropical Pacific Ocean. The vessel supports NOAA's mission to protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management. NOAA Ship *Reuben Lasker* is operated under the direction of officers from the NOAA Commissioned Officer Corps. The NOAA Corps today provides a cadre of professionals trained in engineering, earth sciences, oceanography, meteorology, fisheries science, and other related disciplines. Officers operate ships, fly aircraft, manage research projects, conduct diving operations, and serve in staff positions throughout NOAA.

### *CA-52*

### *San Diego*

**National Marine Fisheries Service (NMFS) - La Jolla Shores Drive Laboratory**

La Jolla is the headquarters for the Southwest Fisheries Science Center and the location of the Director's Office, the Protected Resources, Antarctic Ecosystem and Fisheries Research Divisions, as well as the Operations, Management, and Information Division. Fisheries Science Center scientists conduct marine biological, economic and oceanographic research, observations and monitoring of living marine resources and their environment throughout the Pacific Ocean and in the Southern Ocean around Antarctica. The La Jolla Laboratory Replacement Project (completed in 2013) is an award-winning, LEED Gold-certified facility located on the campus of Scripps Institution of Oceanography, UC San Diego. The new facility is a focal point for ecosystem-based fisheries research, surveys and monitoring programs. In addition to 35 state-of-the-art laboratories, the new facility houses a unique, multi-story Ocean Technology Development Test Tank.

**National Weather Service (NWS) - Weather Forecast Office**

Located in San Diego, this NWS Weather Forecast Office (WFO) is staffed around-the-clock every day, and provides the best possible weather, water, and climate forecasts and warnings to residents of extreme Southwest California, including Orange, San Diego, southwest San Bernadino and western Riverside counties. Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, winter storms, floods, and heat waves. This essential information is provided to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including through dedicated government channels, satellite, the Internet, and NOAA Weather Radio All Hazards. Forecasters also provide Impact-based Decision-Support Services (IDSS), both remotely and on-site, during critical emergencies, such as wildfires, floods, chemical spills, and for major recovery efforts such as those following the Joplin and Moore tornadoes, Hurricanes Katrina and Sandy, and the Sept. 11, 2001, terrorist attacks in New York City and Washington D.C. The WFO collects and disseminates precipitation, river, and rainfall data, and prepares local climatological data. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs, which helps build strong working relationships with local partners in emergency management, government, the media and academic communities. The WFO operates Automated Surface Observing Stations (ASOS), as well as the local Doppler Weather Radar, which provides critical information about current weather conditions. The radar data enables forecasters to issue warnings for tornadoes, severe thunderstorms, and flash floods.

**Office of Oceanic and Atmospheric Research (OAR) - Regional Integrated Sciences and Assessments**
The California Nevada Applications Program (CNAP) and the California Climate Change Center (CCCC) were established as a cooperative agreement between NOAA's Climate Program Office and the Climate Research Division, Scripps Institution of Oceanography University of California. CNAP develops and provides climate information and forecasts for decision makers in California, Nevada, and the surrounding region. CNAP researchers collaborate with stakeholders to (1) develop information and tools for climate adaptation, (2) provide decision support for environmental resources management, and (3) explore and predict potential effects of climate change and variability. CNAP bridges climate science and society through regional applications in three main sectors: water resources and hazards, wildfire, and coasts. Evaluating user needs is also central to CNAP's mission and work.

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# *NOAA In Your State*

# California

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
UNITED STATES DEPARTMENT OF COMMERCE